


The Office of Oversight conducted a focused safety management evaluation at the Savannah River Site.

The U.S. Department of Energy (DOE) Office of Oversight, within the Office of Environment, Safety and Health, conducted an independent oversight focused review of the Savannah River Site (SRS) from July 26 through August 6, 1999. A previous assessment conducted by the Office of Oversight in January 1996 indicated that safety management systems, programs, and processes were being established at SRS. Since then, the site has completed integrated safety management (ISM) implementation activities and verification of Phase I (review of system description) and Phase II (review of system implementation). Accordingly, the primary purposes of the review are to provide feedback to line management on the effectiveness of selected work planning and control systems that implement the five core functions of ISM and to conduct an overall assessment of ISM implementation. This focused

review also examined some of the weaknesses identified during the January 1996 safety management evaluation and the progress in resolving these weaknesses.



SRS areas that were included in this review were the F-Canyon and Buildings 232-H, 233-H, and 234-H.

SRS areas that were included in this review included F-Canyon and the tritium facilities (Buildings 232-H, 233-H, and 234-H). F-Canyon uses chemical processing to stabilize various materials, including reactor targets and offsite-generated plutonium scrap and residues. The 232-H facility extracts tritium from irradiated reactor rods, and recycles and purifies tritium. The 233-H facility loads tritium into new and recycled nuclear weapon reservoirs, unloads tritium from returned weapon reservoirs, and recycles and purifies tritium. The 234-H facility provides weapon reservoir shipping and receiving functions (see site overview below.)

OVERVIEW OF SAVANNAH RIVER SITE

SITE: The Savannah River Site (SRS) is located on federally owned land and covers 198,344 acres (310 square miles). SRS is located approximately 25 miles southeast of Augusta, Georgia, in the state of South Carolina. It borders 27 miles of the Savannah River between western South Carolina and Georgia.

MISSION: SRS was originally constructed to produce the basic materials used in the fabrication of nuclear weapons, primarily tritium and plutonium-239. The mission was expanded to the production of other special radioactive isotopes to support research in nuclear medicine, space exploration, and commercial applications.

SITE MANAGEMENT: The Savannah River Operations Office (SR) is responsible for providing day-to-day direction and oversight of site contractors. There were 14,000 people working at SRS as of January 31, 1999, including operating contractors and subcontractor personnel. Of these, approximately 500 are SR employees. SR is supported by the Westinghouse Savannah River Company (WSRC), the integrating management contractor, which is responsible for the site's nuclear facility operations; the Savannah River Technology Center; environment, safety, safeguards and security, health, and quality assurance; and the site's administrative functions. WSRC has several team members, including Bechtel Savannah River Company, Inc., which provides environmental restoration, project management, engineering, and construction support; Babcock & Wilcox Savannah River Company, which provides disposition of excess facilities and associated equipment; and British Nuclear Fuels Limited Savannah River Corporation, which manages the solid waste program and operates the Consolidated Incinerator Facility, Effluent Treatment Facility, and Saltstone Facility.

The selection of F-Canyon and the tritium facilities allowed the Office of Oversight to evaluate the consistency of work planning and control processes.

The review included observations of work activities and operations, facility walk-throughs, interviews, document reviews, and examination of safety management program elements (conduct of operations, industrial safety/industrial hygiene, maintenance, and radiation protection). This review focused on those site organizations responsible for day-to-day operation of F-Canyon and the tritium facilities, specifically the Savannah River Operations Office (SR), Westinghouse Savannah River Company (WSRC), and selected WSRC subcontractors. Figure 1 provides a simplified version of the SR and WSRC organizational structures.

The selection of F-Canyon and the tritium facilities enabled the Office of Oversight to evaluate facilities with differing mission and functions, facilities at different stages in their life cycle, and facilities operated by different elements of the WSRC organization. This selection of facilities and discipline areas allowed evaluation of the consistency of work planning and control processes and provides a basis for the assessment of the effectiveness of application of the core functions and overall ISM implementation.

In addition to the January 1996 safety management evaluation, the Office of Oversight participated in two other evaluations at SRS. In April and May of 1995, the Office of Oversight conducted a Type A accident

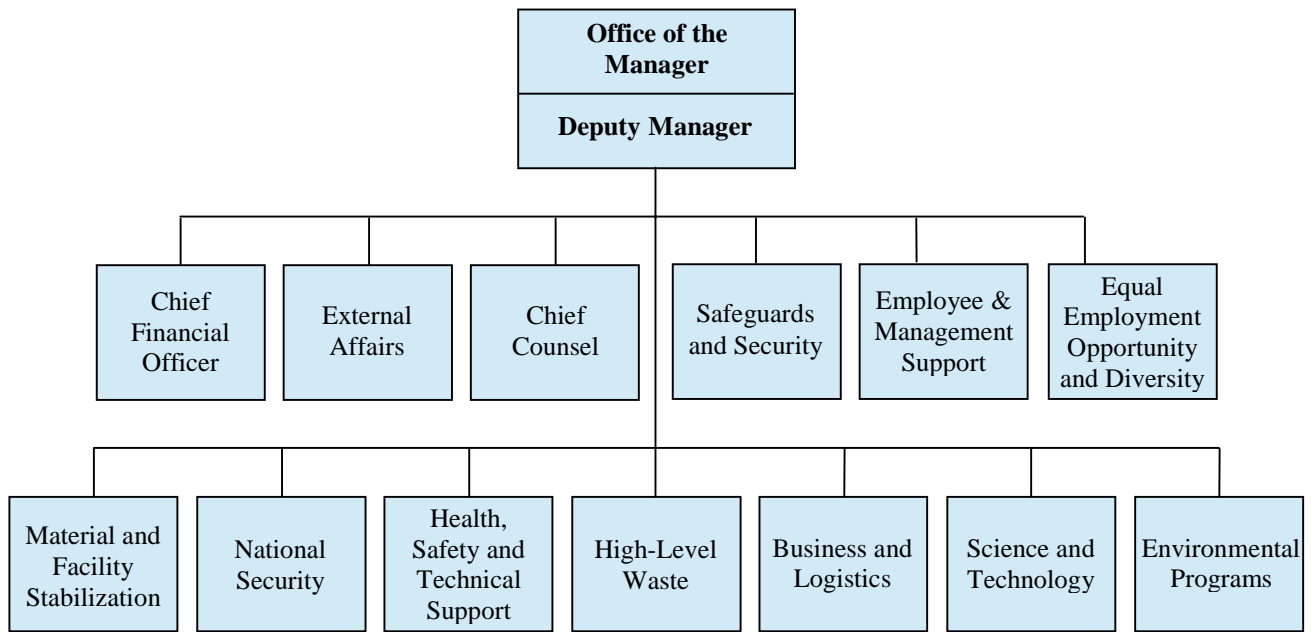


Aerial View of F-Canyon

investigation at the site following a fatality involving a fall from a rappelling tower. In February and March of 1998, the Office of Oversight examined the site's emergency management program as part of a complex-wide assessment of emergency management programs (see summary of previous Oversight evaluations on page 7).

Section 2 of this report includes an assessment of line management's implementation of ISM at SRS as well as an evaluation of ISM implementation as reflected in each of the five core functions. Section 3 provides opportunities for improvement. Issues resulting from this review are summarized in Appendix A. In addition, Appendix A lists issues from the 1996 safety management evaluation, summarizes SRS actions to address these issues, and provides the Office of Oversight's assessment of issue status and conclusions. Further details on the evaluation process and team composition are provided in Appendix B.

Savannah River Operations Office



Westinghouse Savannah River

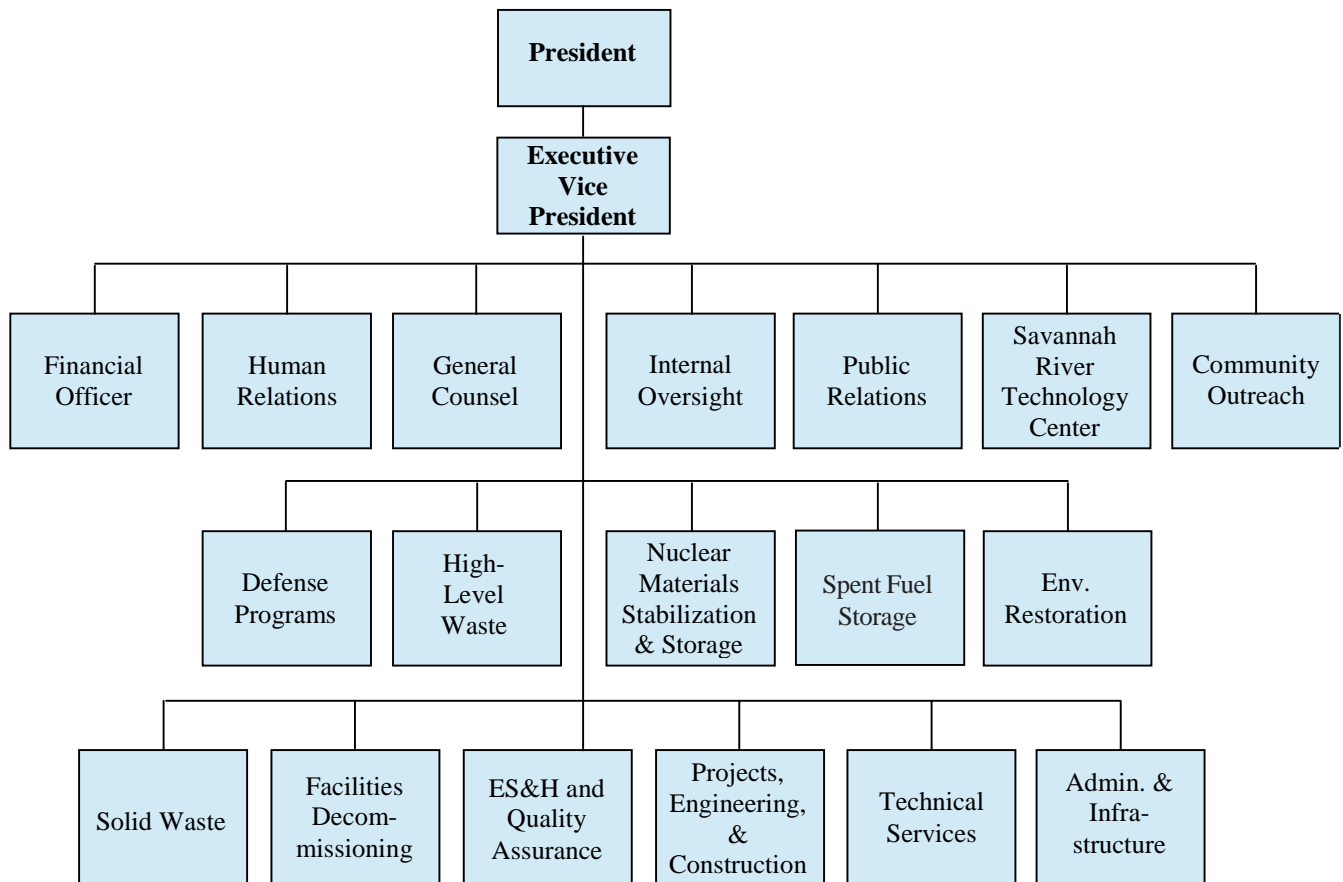


Figure 1. Simplified Organization Chart for SR and WSRC

SUMMARY OF RESULTS OF PREVIOUS OVERSIGHT EVALUATIONS AT SRS

Type A Accident Report on Rappelling Tower Accident, August 1995. A Wackenhut Services, Incorporated–Savannah River Site (WSI–SRS) Special Response Team member received fatal injuries from a 27-foot fall from the top of the SRS Advanced Tactical Training Academy security rappel tower. A buddy rappel, in which a rappeller carries a buddy on his back, was in progress, and a single rope was being used to descend from the top of the tower. The accident occurred when the rope separated during the rappel, and the rappeller fell on top of the buddy. The Accident Investigation Board determined that the direct cause of the accident was separation of the rope, which was caused by the rope coming in contact with the small-radius, sharp-edged, lock-pin housing of the newly installed safety gate combined with the dynamic load of the rappeller and the buddy on the rope. The Board found that there was confusion about the necessity of the Special Response Team’s use of rappelling. The Site Safeguards and Security Plan did not include rappelling as a required Special Response Team operational or tactical response technique. The Board found that SR management did not ensure that the Special Response Team training requirements approved for the WSI–SRS mission were driven by the Site Safeguards and Security Plan. The Board also found that the DOE Headquarters Office of Nonproliferation and National Security exercised program management of the protective force and training programs in accordance with prevailing DOE orders. However, the Board determined that WSI–SRS viewed the rappel-training lesson plans from the DOE Office of Nonproliferation and National Security and the Central Training Academy as Department policy and, therefore, viewed the rappelling lesson plans as indicating that the DOE Office of Nonproliferation and National Security sanctioned rappelling, irrespective of site security requirements. In addition, the Board found that WSI–SRS and DOE policy regarding rappelling was inadequate to prohibit the use of the unacceptable buddy rappel technique.

Independent Oversight Evaluation of Environment, Safety and Health Programs at the Savannah River Site, January 1996. This evaluation found that safety management at SRS was effective and that sitewide operations were being performed in a manner that minimized risks to the safety and health of workers, the public, and the environment. In several areas, such as the standards/requirements identification documents (S/RID) approach to requirements management and the Facility Representative program, SRS was found to be leading the DOE complex. SRS developed strong top-level strategies, policies, and processes, which were well articulated and documented. SRS was facing challenges associated with changing mission, resource reduction, and implementation of evolving Headquarters policies (for example, privatization of DOE activities). SRS management and DOE Headquarters managers were found to be cognizant of the resulting uncertainties and were closely coordinating their efforts to meet these challenges. Weaknesses were identified during the evaluation in such areas as authorization basis documentation, recurring deficiencies, and root cause analysis, line oversight of subcontractor work, life safety code violations, and the integration of environment, safety, and health (ES&H) into laboratory operations.

Special Study of Emergency Management Programs at the Savannah River Site, March 1998. This review indicated that SRS had a sound and mature emergency management program. SR, WSRC, and WSI–SRS demonstrated a strong commitment to establishing and sustaining a well managed and responsive emergency management function, while balancing and controlling the impact of sitewide funding and staff reductions. SR and WSRC management commitment and program “ownership” were evident through their investment in state-of-the-art facilities and their attention to the provision and maintenance of essential emergency equipment. Commitment at the facility level was evidenced by a comprehensive training and drill program at the Defense Waste Processing Facility to ensure that operators are capable of responding to emergency situations. The SRS emergency management program was found to have a strong capability to self-identify deficiencies and to respond effectively to a wide range of emergencies. Notwithstanding the overall effectiveness of the emergency management systems, several weaknesses were noted. For example, the consequence assessment process did not ensure that decision-makers clearly understood the projected consequences so that they could implement appropriate protective actions. In addition, the upgraded classification of the annual emergency exercise, which required a response to a postulated explosion and potential offsite radiological release, was not conservative or timely because of differences in opinion among emergency response organization managers.